CLAIMS:

1.   A method comprising:

storing routing information mapping destinations to routes within a network;

5   storing a set of routing rules;

receiving a network communication comprising destination information and data;

comparing at least a portion of the data to the set of routing rules;

selecting a route from the routing information based on the destination information of

the network communication and a result of the comparison; and

10   forwarding the network communication according to the selected route.

2.   The method of claim 1, wherein the network comprises a medical imaging network

and the network communication complies with the DICOM protocol, and further wherein

storing routing information comprises storing routing information mapping Application

15   Entity Names (AENames) to routes within the medical imaging network.

3.   The method of claim 2, wherein selecting a route from the routing information

comprises comparing an AEName defined within the network communication to the

AEName defined within the routing information.

20

4.   The method of claim 1, wherein the network communication complies with the

DICOM protocol, and further wherein comparing at least a portion of the medical imaging

data comprises:

parsing the medical imaging data to identify a set of DICOM tags and corresponding

25   data; and

assessing a routing rule from the set of routing rules based on the DICOM tags and

corresponding data.

5.   The method of claim 1, wherein storing a set of routing rules comprises storing an

30   XML-based set of rules, wherein the rules conform to a user-defined grammar for routing the

medical imaging data.

6.   The method of claim 5, further comprising presenting an interface for receiving user input that defines the user-defined grammar.

5   7.   A router comprising:

a computer-readable medium storing routing information mapping destinations to routes within a medical imaging network, and storing a set of routing rules; and

a routing module that selects a route from the routing information based on
10   destination information of a network communication and a comparison of medical imaging data of the network communication to the set of routing rules.

8.   The router of claim 7, wherein the routing information maps DICOM Application Entity Names (AENames) to routes within the medical imaging network.

15

9.   The router of claim 7, wherein the routing module parses the medical imaging data to identify a set of DICOM tags and corresponding data, and assesses the routing rules based on the DICOM tags and corresponding data.

20   10.   The router of claim 7, wherein the set of rules includes rules defined by the eXtensible Markup Language (XML), and which conform to a user-defined grammar for routing the medical imaging data.

11.   The router of claim 10, further comprising a user interface for presenting an interface
25   for receiving user input that defines the user-defined grammar and the rules.

12.   A computer-readable medium storing data comprising routing information mapping destinations to routes within a medical imaging network, wherein the routing information maps DICOM Application Entity Names (AENames) to routes within the medical imaging
30   network.

24

13.   The computer-readable medium of claim 12, further storing a set of routing rules, wherein the set of rules includes rules defined by the eXtensible Markup Language (XML), and which conform to a user-defined grammar for routing the medical imaging data.

14.   A computer-readable medium having instructions thereon to cause a programmable processor to:

store routing information mapping destinations to routes within a medical imaging network;

store a set of routing rules;

receive a network communication comprising destination information and medical imaging data;

compare at least a portion of the medical imaging data to the set of routing rules;

select a route from the routing information based on the destination information of the network communication and a result of the comparison; and

forward the network communication according to the selected route.

15.   The computer-readable medium of claim 14, wherein the network communication complies with the DICOM protocol, and further wherein the instructions cause the processor to store routing information mapping Application Entity Names (AENames) to routes within the medical imaging network.

16.   The computer-readable of claim 15, wherein the instructions cause the processor to compare an AEName defined within the network communication to the AEName defined within the routing information.

17.   The computer-readable of claim 16, wherein the instructions cause the processor to:

parse the medical imaging data to identify a set of DICOM tags and corresponding data; and

assess the routing rules based on the DICOM tags and corresponding data.

18.   A method comprising:

25

receiving user input defining routing information;

generating a rule in Extensible Markup Language (XML) format based on the routing information;

storing the XML-based rule in a rule set;

5   receiving a network communication comprising medical imaging data;

assessing the XML-based rule based on at least a portion of the medical imaging data; and

routing the network communication based on the assessment of the XML-based rule.

10   19.   The method of claim 18, wherein the user input defines a grammar for routing medical images within a medical imaging environment.

20.   The method of claim 18, wherein the user input defines tags including a patient identifier, an imaging modality.

15

22.   A method comprising:

detecting medical imaging application information for a first domain within a medical imaging network;

receiving a network message having a destination within the first domain;

translating application information within the network message to the application information for the first network domain; and

forwarding the network message to the destination.

23.   The method of claim 22, wherein detecting medical imaging application information

25   includes establishing a temporary association with a medical imaging device within the first domain.

24.   The method of claim 22, wherein detecting the medical imaging application information includes detecting an Application Entity Title (AETitle), a DICOM version and a

30   unique identifier (UID).

25. The method of claim 22, wherein translating the application information includes parsing data within the network message to identify the application information of network message.

5   26. A method comprising:

receiving examination information for a patient;

examining routing information within a network router to identify storage systems within a network; and

retrieving medical imaging data from the identified storage systems prior to an

10   examination of the patient.

27. The method of claim 26, wherein retrieving the medical imaging data comprises issuing move commands requesting the identified storage systems move the medical imaging data to a destination device.

15

28. The method of claim 27, wherein the destination device comprises a medical imaging modality.

29   The method of claim 26, wherein retrieving the medical imaging data comprises:

scheduling a pre-fetch operation based on the exam information; and

20   issuing move commands based on the scheduled pre-fetch operation.

30. The method of claim 29, further comprising issuing queries to the identified storage systems to locate storage assets relating to a patient.

25

31. The method of claim 30, wherein issuing queries comprises issuing CFIND commands according to the DICOM protocol.

32. The method of claim 30, further comprising selecting at least on of the storage

30   systems based on characteristics of a network link between the selected storage system and a destination device.

33.   A router comprising:

      a computer-readable medium storing routing information mapping
destinations to routes within a medical imaging network; and

      a patient management module to receive examination information for a
patient, and to retrieve medical imaging data prior to an examination of the patient based on
the routing information.

34.   The router of claim 34, wherein the patient management module examines the routing
information to identify storage systems within the medical imaging network.

35.   The router of claim 34, wherein the patient management module schedules a pre-fetch
operation based on the examination information, and issues move commands based on the
scheduled pre-fetch operation.

36.   The router of claim 35, wherein the patient management module issues queries to the
identified storage systems to locate storage assets relating to a patient.

37.   The router of claim 36, wherein the patient management module issues CFIND
commands according to the DICOM protocol.

38.   A method comprising:
      receiving a request for an asset;
      determining a global unique identifier (GUID) associated with the requested asset;
      examining routing information to identify storage systems within a network;
      issuing queries to the storage system to determine which storage systems have a local
copy of the requested asset, wherein the queries include the associated GUID; and
      selectively retrieving one of the local copies of the requested asset.

39.   The method of claim 38, further comprising:
      receiving a new storage asset from a medical imaging modality; and

assigning the global unique identifier (GUID).

40.   The method of claim 38, wherein selectively retrieving the requested asset comprises issuing a DICOM MOVE command to one of the storage systems.

5

41.   The method of claim 38, wherein selectively retrieving the patient information comprises selecting one of the storage systems based on a characteristic of a connection between the storage system and a requesting device.

10